

Remarks

Claims 1-12 are pending. Claims 13-15 have been canceled as being drawn to a non-elected invention. Claim 2 has been amended to remove "preferably", while claim 16 has been amended to depend from claim 1. No new matter has been added.

The Examiner raises an objection as to Figure 2. Applicants submit a proposed amended figure for the Examiner's approval. If acceptable, Applicants will request that the changes be made on formal drawings for submission and entry in the file.

The Examiner rejects claim 2 under 35 U.S.C. 112(2) as being indefinite for failing to particularly point out and distinctly claim the intended subject matter. The Examiner correctly objects to the reference to preferably in claim 2. Claim 2 has been amended to eliminate the reference to "preferably".

The Examiner rejects claims 1-7 and 10-12 under 35 U.S.C. 103 as being unpatentable over U.S. Pat. No. 5,788,867 ("Pearson") in view of U.S. Pat. No. 5,902,487 ("Pickering et al."). The Examiner asserts that Pearson teaches a process for combining polymeric particles with dispersed particulate solids substantially as claimed. Pickering is cited as showing that flocculants commonly have the intrinsic viscosity recited at the conclusion of claim 1. The Examiner maintains that the specific particle size of polymers and dispersed solids would have been an obvious matter of process optimization absent a sufficient showing of unexpected results. Applicants respectfully traverse this rejection.

The present invention is drawn to a process in which material comprising an aqueous liquid with dispersed particulate solids is pumped as a fluid then allowed to stand and rigidify, wherein the rigidification is improved without loss of pumpability. These developments are accomplished by combining polymeric particles with the material during or prior to pumping the material, wherein the selected polymeric particles comprise water-soluble polymer having an intrinsic viscosity of at least 3 dl/g. The key attributes of the invention are a) pumpability; b) addition during or prior to pumping;

Pearson describes a process for stabilizing red mud waste slurries using water-soluble polymeric emulsions. The reference indicates that nearly any water-soluble polymer would be suitable for this process. In fact, Pearson states that "any type of water-soluble polymer" would be suitable. Column 3, lines 62-64. In the following columns, Pearson describes anionic, cationic, non-ionic monomers that would be suitable, along with the statement that the molecular weights "are not critical and can range from a few hundred thousand to ten million." Column 5, lines 8-10. Pearson clearly does not recognize or suggest the importance of using a polymer having an intrinsic viscosity greater than 3 dl/g as required by claim 1. Pearson does not teach a specific addition point for the polymer. Pearson takes samples from the suction side of a pump, but does not provide that a selected polymer must be added during or prior to pumping of the red mud. Hence, Pearson fails to disclose or suggest at least two key attributes of the claimed processes.

The Examiner cites Pickering as teaching that flocculants having the selected intrinsic viscosity are known for dewatering of mineral suspensions. Pickering describes a plant for conditioning and dewatering a suspension using a continuous filtration system or a continuous centrifugal dewatering apparatus. Applicants do not disagree that polymers having an intrinsic viscosity greater than 3 are known for such uses. However, the red mud in Pearson is not being dewatered using conventional flocculant technology in which suspended materials are caused to fall out of suspension. Pearson says as much in column where it is said, "the water-soluble polymers surprisingly appear to function as a binder, rather than a flocculant". Column 2, lines 37-39. Therefore, there is no basis for combining the teachings for flocculation in Pickering with the red mud stabilization process taught in Pearson.

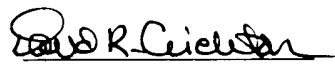
The Examiner rejects claims 8 and 9 under 35 U.S.C. 103 as being unpatentable in view of Pearson, Pickering and further in view of U.S. Pat. No. 5,853,677 ("Avotins et al."). The Examiner cites Avotins as teaching that it is known to use blends of polymers and inorganic salts for treating solids from a Bayer process. Applicants respectfully traverse this rejection.

The foundation of this rejection is the combination of Pearson and Pickering. For the reasons provided above, Applicants have shown that the combination is improper and should be withdrawn.

The Examiner rejects claims 16-18 under 35 U.S.C. 103 as being unpatentable over Pearson in view of Pickering and further in view of U.S. Pat. No. 5,728,295 ("Duan"). Claims 16 to 18 include the feature of using a side stream as a preliminary mixing medium for the polymer. Claim 16 has been made dependent from claim 1. Therefore, these claims are patentable over the prior art for substantially the same reasons given above.

Applicants submit that the present application is now in condition for allowance. In the event that minor amendments will further prosecution, Applicants request that the Examiner contact the undersigned representative.

Respectfully submitted,



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Encl.: Proposed amended Figure 2